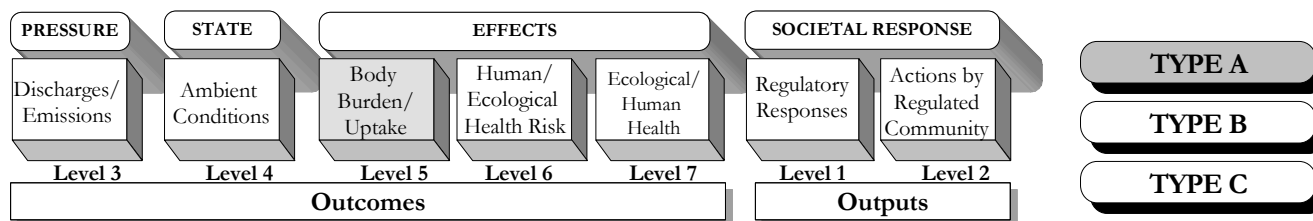




ECOLOGICAL HEALTH MAJOR ECOSYSTEM FUNCTIONING



Indicator: Contaminants in Colonial Nesting Waterbirds

The Great Lakes compose an important and unique ecosystem. They represent the largest system of fresh water in the world and provide many economic and ecological benefits to the surrounding areas. The Great Lakes basin, which includes the lakes and over 290,000 square miles of land that drains into them, supports concentrated industry and agriculture for the U.S. and Canada. These activities have taken their environmental toll on the Great Lakes as sewage, fertilizer and pesticide run-off, and industrial wastes have deteriorated water quality. In response to this, there have been many pollution prevention and clean-up efforts sponsored by local governments, the EPA and the Canadian government. Long-term monitoring is necessary to track the progress of these initiatives and to prevent any further degradation of the Great Lakes ecosystem.

The indicator, contaminants in colonial nesting waterbirds, will measure present chemical concentration levels and trends as well as ecological and physiological endpoints in colonial birds, such as gulls, terns, cormorants and/or herons. This information will help assess the impact of contaminants on the health of the waterbird populations. Of particular concern is the physiology and breeding characteristics of the waterbirds. This indicator will serve to be exceptionally valuable because waterbirds are at top of the aquatic food web predators in the Great Lakes ecosystem and thus, they bioaccumulate contaminants to the greatest concentration and they breed on all the Great Lakes. This will allow for easy comparisons among the lakes.

The main objective of examining colonial waterbirds on the Great Lakes is to know at which point there is no difference in chemical and biological parameters between colonial waterbirds from the Great Lakes and those off the Great Lakes. This will be essential in recognizing when the clean-up goal has been achieved.

Notes: Data not provided by date of publication.

Source: "State of the Lakes Ecosystem Conference 2000 Implementing Indicators: Draft for Discussion at SOLEC 2000," October 2000. SOLEC Web Site: <http://www.on.ec.gc.ca/solec/implementing2000-e.html>

Scale: The Great Lakes and their watersheds

Data Characteristics and Limitations: N/A

References

Bertram, Paul, and Stadler-Salt, Nancy, "Selection of Indicators for Great Lakes Basin Ecosystem Health: Version 4," State of the Lakes Ecosystem Conference, March, 2000.

Environment Canada SOLEC Web Site. 31 January 2003. Available online at: <http://www.on.ec.gc.ca/solec/intro.html>

U.S. EPA SOLEC Web Site. 31 January 2003. Available online at: <http://www.epa.gov/grtlakes/solec>